Tiered Storage: Process is Key

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Agenda

- **Introduction**
- **The Utility Model**
- **Building a Storage Management Group**
- **The Storage Management Lifecycle**^{SM}
- **Also see** *Storage* **magazine, April 2004**

Introduction

- **IT is made up of people, not just technology.**
- **Vast technology advances, but little process improvement**
- **Transform IT into a strategic part of the business:**
  - **Leverage "utility" concepts.**
  - **Build an effective storage management group.**
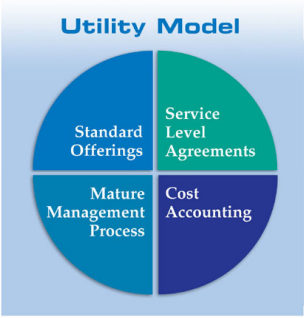 - **Use "maturity" concept to drive process improvements.**

The Utility Model

- **Utility concepts apply even if you're not building a utility!**
- **Utilities centralize resource management and offer fixed services to "consumers".**
- **Benefits of the Utility Model:**
  - Reduced costs through resource sharing
  - Improved service through specialization and standardization
  - Alignment of service and requirements through SLAs

Utility Model

Standard Offerings

Service Level Agreements

Mature Management Process

Cost Accounting

SOURCE: GlassHouse Technologies, Inc.

Building a Storage Management Group

- **Many skill sets in Storage:**
  - Technologies (EMC, Brocade, Network Appliance, Veritas, Legato)
  - Operations (Monitoring, helpdesk, maintenance)
  - Business (SLAs, cost accounting, project management)
- **No matter the skill area, don't spread yourself too thin.**

Debunking the TB per Admin Metric

- **Problems with TB/Admin:**
  - Ignores Complexity - Heterogeneous/homogenous
  - Ignores other skill sets – operations, cost accounting, business analysis, management
  - No indication of effectiveness – I can manage 1PB for one day!
  - No defined "best practice" – Analysts say .5, 1.25, 1.5; Vendors say 5, 7, 10
  - Usually a quick-fix or scapegoat metric; no relation to the real world

How Many Admins Do You Need?

- **Add up skill sets:**
  - Technologies: storage arrays, switches, host OSes, backup products, storage management apps
  - Add in cost accounting, business analysis/SLAs, policy development, project management
- **Divide by 1.5.**
  - Each person is good for about 3 skill sets.
  - Each skill set needs at least two people.
- **Scale to match your business.**

Align Resources With Requirements

- **Most storage groups are under-staffed.**
- **Risks abound:**
  - Lack of technology coverage (vacations, nights)
  - Lack of focus (storage, backup, operations)
  - Failure to align technology with business
- **Define roles/responsibilities and boundaries.**

The Storage Management Lifecycle

- Mature Management Processes is one leg of the utility model.
- Maturity requires an understanding of processes.
- The GlassHouse SML^{SM} is a framework to organize a list of processes.

GlassHouse Storage Management Lifecycle^{SM}

Plan ➡ Implement ➡ Operate

Phase I – Planning

- **Discovery**: Collect data about current infrastructure, process, organization
- **Requirements**: Determine infrastructure, process, organization needs
- **Strategy**: Develop overall direction, capacity planning, data identification, and architecture
- **Policy Definition**: Determine methods of implementing strategy

Phase II – Provisioning

- **Purchasing**: Product selection, design, ordering, staging, and asset management
- **Change Control**: Requisitioning, SLA negotiation, and optimization
- **Activation**: Implementation of technology per requests
- **Service Acceptance**: Testing, go-live, SLA acceptance

Phase III – Maintenance

- **Management**: SOP development, resource management, training
- **Operations**: Day-to-day monitoring, fault response, maintenance
- **Remediation**: Response to issues

Phase IV – Customer Care

- **Cost Accounting**: Cost modeling, reporting and chargeback
- **Service Assurance**: SLA performance, customer service, helpdesk and customer satisfaction

Assessing Process Maturity

- Maturity is a hard metric for a soft area.
- Leverage the CMU Capability Maturity Model.
- Where are you? Where should you be?
- Each process can be at a different level – not all should be at level 5!

Level	Name	Description
1	Initial	Ad-hoc, reactive, "firefighting"
2	Repeatable	Proactive, trained people
3	Defined	Documented, standardized products and procedures
4	Managed	Metrics for deliverables and Processes
5	Optimizing	Continuous improvement with Feedback

What To Do Next?

- **Determine your storage strategy.**
- **Define your service boundaries.**
- **Examine your staffing requirements.**
- **Outline your management lifecycle.**
- **Assign processes as job responsibilities.**
- **Adjusting process maturity.**

Thank you. Questions?

- See me at Ask-the-Expert booth:

Monday 5:00-6:00 PM

Tuesday 4:00-5:00 PM

- More on this topic in the April Integration column, *STORAGE* magazine